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Application of Chih-Ta Star Sung U.S. Application No. 10/712,138

"Claim 1" recites a new method for decoding a video stream:

1). Incoming video stream equals to one of previously saved "Block" (DCT

keeping the DCT bit stream of previously decompressed blocks of pixels into a

temporary buffer for comparing to the targeted block of pixel stream.

2). Incoming video stream equals to one of previously saved "Block" (DCT

coefficient with VLC coded form) stream, then, the decompressed pixel values

(differential values of a block pixels) will be used to represent the coming block.

We directly compare the video stream block by block to previous stream to identify the

block which equals to previous block which needs no decompression procedure

including ("VLD", "inverse DCT" and "DeQuantization").

Owen et al. US 6028635 indeed stores the decompressed pixels into the first memory

as cited in Column 6 Line 34-38, and shown in Fig. 2 of Column 8, Line 39-41), Owen

does not teach the spirit of comparing the current block to previously decoded blocks.

And in Wee 6,697,061 which indeed teaches motion estimation/compensation and

DCT and inverse DCT (Column 4, Line 31-36 and Column 3, Line 47-55). But, the

inverse DCT is for "Reconstructing" the compressed image as "Referencing Frame"

for future Compression used or to identify image which does not have any editing in

previous frame which does not teach this invention of "decoding video stream" and

does not teach VLD, dequantization and inverse DCT for decompressing a video

Application of Chih-Yu Chen Date U.S. Application No. 10/712,158

stream.

Applicant believes Claim 1 in the present invention needs to make clearer and needs to make more obvious difference to prior arts to avoid ambiguity.

Therefore, the Applicant respectfully submits you allow Claim 1, with the following updated Claim:

Claim 1: A method for decoding a video stream, comprising:

saving the coming block of compressed video data stream to the first on-chip temporary storage device, applying the variable length decoding method to decode the video bit stream and block by block recovering the DCT coefficients and dequantizing the coefficient by multiplying the quantization table and inverse transforming the DCT coefficients to matrix of pixel values;

saving the decompressed block of pixels into the second on-chip temporary storage device;

looking up incoming compressed block of pixel data to the blocks of received pixel data saved in the first temporary storage device and identifying whether any of the previous block is equivalent to the coming block; and

if a "Match" happens:

utilizing the block pixel data saved in the second temporary storage device

Application of Chih-Ta Star Sung - U.S. Application No. 10/712,138

decompressed bit stream, and saving the decompressed block of pixels to a predetermined location of the second storage memory.

otherwise, decompressing the block of bit stream according to the normal decompression procedure and saving the decompressed block of pixels to a predetermined location of the second storage memory.

Therefore, the Applicant respectfully submits you allow Claim 1.

Claim 2: The present claim 2 teaches that only the block which does not find an equivalent block in previous blocks will go through the procedure of video decompression including VLD, dequantization, inverse DCT to reconstruct the block of pixels which is different from the quoted prior Owen et al. US 6028635, column 7, Lines 54-60 which teaches a typical procedure of block decompression no matter it find or not find an equivalent block of previous blocks. In Owen et al. US 6028635, recompresses the block before saving the reference block of pixels into the frame buffer to save the time of saving to memory which **does not have any similarity to this claim.**

Therefore, the Applicant respectfully submits you allow Claim 2, with the following updated Claim:

Application of Chih-Ta Star Sung – U.S. Application No. 10/712,138

Claim 2: The method of claim 1, further comprising the steps of decoding the DCT bit stream and saving the decoded result of **block of pixels** into the second temporary storage device and saving the DCT coefficients into the first temporary storage device if the compressed block of block of pixels fails to match any of the previous blocks.

Claim 3. The present claim 3 teaches that only the block which does not find an equivalent block in previous blocks will go through the procedure of video decompression including VLD, dequantization, inverse DCT to reconstruct the block of pixels which is different from the quoted prior Owen et al. US 6028635 which teaches “**Re-compressing**” the block before saving the reference block of pixels into the frame buffer to save the time of saving to memory which does not have any relationship with this claim of comparing previous blocks of pixel data.

Therefore, the Applicant respectfully submits you allow Claim 3, with the following updated Claim:

Claim 3: The method of claim 2, further comprising the step of saving the decompressed result of DCT bit stream into an on-chip second temporary buffer.

Claim 4: The present claim teaches that only the coming block of DCT coefficients

PAGE 4/6 * RCVD AT 10/10/2008 8:15:11 PM [Eastern Daylight Time]* SVR:USPTO-EFXRF-4/19 * DNIS:2738300 * CSID: * DURATION (mm:ss):03:20

Application of Chih-Ta Star Sung – U.S. Application No. 10/712,138

finds an equivalent block in previous blocks will go through the procedure of video decompression including VLD, dequantization, inverse DCT to reconstruct the block of pixels which is different from the quoted prior arts quoted in Wee et al. US 6697061 which teaches the saving of times of compressing the block pixels in motion estimation by comparing the motion vector of previous blocks for saving time of compression specifically in motion estimation which consumes most power of calculation which does not teach any of block comparison as in this claim of the present invention.

Therefore, the Applicant respectfully submits you allow Claim 4, with the following updated Claim:

Claim 4: The method of claim 1, wherein the coming DCT input bit stream and one of the previous blocks of DCT coefficients are identical, then, the decoded block of pixels is used to represent the coming block.

Claim 5: The present claim teaches that if a tolerance of DCT coefficients of the block of pixels is set to allow some mismatch and saves time in decompressing the block data. Which is different from the quoted prior arts quoted Wee et al. US 6697061 Column 5, Line 30-33, which teaches the saving of times of compressing the block pixels in motion estimation by comparing the motion vector of previous blocks for saving time of compression specifically in motion estimation which consumes most power of

Application of Chih-Ta Star Sung – U.S. Application No. 10/712,138

calculation which discloses a method of compressing video with previously edited or not edited for reducing the computing times of motion estimation which does not relate to this claim which is focusing on the decompressing a block of DCT data is quite different from compressing which we do NOT relate to the prior art motion estimation or compression method.

Therefore, the Applicant respectfully submits you allow Claim 5, with the following updated Claim:

Claim 5: The method of claim 1, wherein the DCT input bit stream and the DCT reference bit stream are matched if a difference of the DCT input bit stream and the DCT reference bit stream is lower than a predetermined tolerance.

Claim 6: The present claim teaches that a neighboring block of pixels is equivalent to the target block. Which is different from the quoted prior arts quoted in Wee et al. US 6697061 which teaches again, the saving of times of compressing the block pixels in motion estimation by comparing the motion vector of previous blocks for saving time of calculation, specifically in motion estimation which consumes most power of calculation as recited in Column 5 Lines 27-33 which discloses a method of compressing video with previously edited or not edited for reducing the computing times of motion estimation which does not relate to this claim which is focusing on the

Application of Chih-Ta Star Sung - U.S. Application No. 10/712,138

decompressing a block of DCT data is quite different from the prior art motion estimation or video compression method.

Therefore, the Applicant respectfully submits you allow Claim 6, with the following updated Claim:

Claim 6: The method of claim 1, further comprising a step of representing a target block with a decompressed block pixels' within neighboring blocks if a compressed stream of the previously saved block in the first temporary storage device is identical to a target block stream.

Claim 7: The present claim teaches that a block difference is compared to the weighted difference of a neighboring block of pixels to determine whether it can be classified as a match. Which is different from the quoted prior arts quoted Wee et al. US 6697061 which teaches again, the saving of times of compressing the block pixels in motion estimation by comparing the motion vector of previous blocks to see whether a match happened or not for saving time of calculation, specifically in motion estimation which consumes most power of calculation as recited in Column 5, Line 30-33 which discloses a method of compressing video with previously edited or not edited for reducing the computing times of motion estimation which does not relate to this claim which is focusing on the decompressing a block of DCT data.